NRA Workshop
AATT Project Office

March 23, 1999

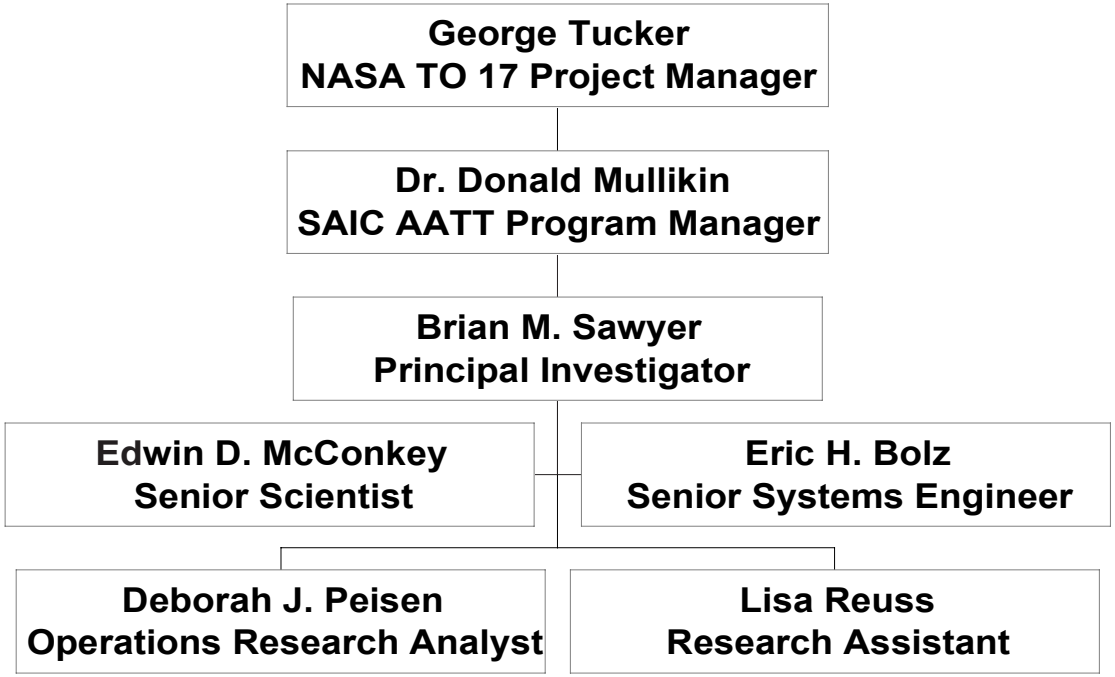
Task Order 17

Requirements Analysis for Simultaneous and Non-Interfering (SNI) Rotorcraft Operations at Selected Airports

Project Summary

- Data as of Date: March 5, 1999
- Contract Number: NAS2-98002
- Contract Type: FP LOE
- Period of Performance:October 1, 1998 thru April 30, 1999
- Contract Value: Fully Funded
  - SAIC: $ 99,610
  - Actuals to Date: $ 39,115
  - Remaining: $ 60,495
- SOW Summary: The task seeks to provide an understanding of the IFR operating environment at four major airports in the Northeastern United States to aid in definition of further work in support of a Simultaneous and Non-Interfering (SNI) Operations Concept.

Project Staffing Plan



Objective

- ✓ Assess degree to which current IFR operational efficiency for rotary- and fixed- wing aircraft is impacted by IFR rotorcraft operations at selected northeastern U.S. airports and associated ATC facilities:
  - Philadelphia International (PHL)
  - Newark International (EWR)
  - Teterboro (TEB)
  - LaGuardia (LGA)
  - New York TRACON (N90)

Tasking

- ✓ Conduct assessment of current rotorcraft IFR operations at PHL, EWR, TEB, LGA, N90
- ✓ Identify repetitive situations where alternate rotorcraft IFR approaches/departures could be implemented to improve flow of rotary- and fixed-wing air traffic
- ✓ Where need is identified, a preliminary assessment **will be explored**

Deliverables/Schedule

Deliverable	Month # 1	Month # 2	Month # 3	Month # 4	Month # 5	Month # 6	Month # 7
Task Plan	Task Plan						
Draft/Final Report						Draft Report	Final Report
Weekly Reports	▲▲▲▲	▲▲▲▲	▲▲▲▲	▲▲▲▲	▲▲▲▲	▲▲▲▲	
Progress Reports	Progress Report	Progress Report	Progress Report	Progress Report	Progress Report	Progress Report	
Mid-Project Review				Presentation			

Note: A one month no-cost extension to task was approved.

Technical Approach

✓ Conduct assessment of IFR operations

- in-depth review of all IFR operational policies and procedures
  - data published within last 2 years
  - national and local operational procedures
  - application of Special VFR (SVFR)
  - FAA Orders and Advisory Circulars
  - **Federal Regulations**

Technical Approach

✓ Conduct assessment of IFR operations

- data assessment
  - coordinate with FAA and airport officials
  - contact rotorcraft organizations
  - develop applicable questions for air traffic and local rotorcraft operators
  - conduct on-site interviews
  - coordinate operator surveys

Technical Approach

✓ Conduct assessment of IFR operations

- assimilation and aggregation
  - operators and ATC information
  - existing operational standards
  - current VFR/IFR route structure
  - SVFR procedures
  - benefits and penalties
  - rotorcraft priorities
  - **repetitive IFR flow**

Technical Approach

✓ Identify situations to improve flow

- analyze acquired data
  - controlled/uncontrolled airspace
  - ATC handoff points
  - current/proposed operational procedures
  - published IFR procedures
  - VFR & IFR traffic flow
  - on/off-airport heliports/helipads
  - assess operator input

Technical Approach

✓ Assess potential SNI implementation

- analyze airspace configuration
  - identify sites for improved efficiency
  - investigate multiple arrival/departure paths
  - determine transition points
- assume suitable IFR/GPS equipment
- GPS-based low altitude airway structure
- air traffic/operator evaluation

Preliminary Results

✓ Air traffic operations

- air traffic control awareness/workload
- exploit rotorcraft performance characteristics
- radar coverage restrictions
- GPS navigation not approved for sole source
- limited number of “rotorcraft” IAPS
- SVFR used routinely in class B airspace
- must be accomplished in existing airspace

Preliminary Results

✓ Rotorcraft operations

- unique operating characteristics
- direct IFR routing requirement
- provides fast/direct transportation
- airport environment altitude restrictions
- SVFR offers operational advantage
- fixed-wing routes hinder operations
- icing conditions at altitude
- **limited IFR alternate heliports/airports**

Preliminary Results

✓ Rotorcraft operations

- desire separate IFR routes based on GPS
- rotorcraft IFR normally means
  - additional time
  - fuel restriction
  - routing decisions
- IFR/SVFR operations require LOA
- **SVFR/GPS offers solution**

Preliminary Conclusions

- ✓ Government and industry partnership required
- ✓ Commitment necessary from system users
- ✓ Northeast Corridor experience as baseline
- ✓ Differing views between rotorcraft support organizations and real world operators concerning SNI
- ✓ Maintain community noise sensitivity
- ✓ **Define low-altitude structure**

Preliminary Conclusions

- ✓ Employ SVFR operational techniques for developing SNI low–altitude routes
- ✓ Navigational accuracy means GPS
- ✓ Dedicated GPS IAPS (P/NP) needed
- ✓ Network linking GPS IAPS required
- ✓ Network should include enhanced TEC service

Technical Report

- Objective
- Specific Tasking
- Technical Approach
- Investigative Results
- Conclusions
- Recommendation
  - navigational system
  - SNI applications
  - future investigation